AP Computer Science Semester 1

Course Description

Computer science is the Math of the 21st century.

This computer science course follows the curriculum outlined by College Board. The lessons are aligned to the course objectives for AP Computer Science A as described in the AP Computer Science Course and Exam Description. Each unit demonstrates design, logical reasoning and problem solving, through the use of the Java computer programming language, while using an Object Oriented Paradigm. Vocabulary and content knowledge are emphasized and assessed throughout the course.

Students will be using the Java language to explore computer science topics and use Object Oriented principles to solve problems and model real-life scenarios with software. These 21st century computing skills translate to high-paying in-demand jobs projected in the field of computer science by the US Department of Labor.

Prerequisites

Algebra I

Computer Programming (Computer Science 1) with a grade of C+ or better

Course Materials

Required

- Microsoft Office or Google Docs (See the Minimum Technical Skills and Special Technology Utilized by Students)
- Reliable Internet Access
- Laptop or Desktop (Tablets need Puffin app for internet browsing)
- Adobe Acrobat Reader
- Student computers should be equipped with Oracle Java SDK. We are using the Netbeans IDE (Interactive Development Environment) in the course videos, but the student may use an alternate IDE, of which many are available online for free download to a computer.

Recommended

None

Course Goals

Upon completion of the course, students will…

- Incorporate elements of abstraction, by breaking problems down into interacting pieces, each with their own purpose, makes writing complex programs easier. Abstracting simplifies concepts and processes by looking at the big picture rather than being overwhelmed by the details. Modularity in object-oriented programming allows us to use abstraction to break complex programs down into individual classes and methods.

- Use information as a basis for reasoning, discussion, or calculation is referred to as data. Programs rely on variables to store data, on data structures to organize multiple values when program complexity increases, and on algorithms to sort, access, and manipulate this data. Variables create data abstractions, as they can represent a set of possible values or a group of related values.
- Do things in order, making decisions, and doing the same process multiple times are represented in code by using control structures and specifying the order in which instructions are executed. Programmers need to think algorithmically in order to define and interpret processes that are used in a program.
- Use computing safely and responsibly, we need to be aware of privacy, security, and ethical issues. As programmers, we need to understand how our programs will be used and be responsible for the consequences.

Units of Instruction

- Unit 1: Primitive Types
- Unit 2: Using Objects
- Unit 3: Boolean Expressions and if statements
- Unit 4: Iteration
- Unit 5: Writing Classes

Assignments

The course includes the following assignments:

- 0 Discussions
- 19 Dropboxes
- 29 Quizzes (Includes Unit Test and Final Exam)

Grading / Evaluation

Grading Scheme

Course grades will be determined as follows:

97% or better	A+	77% to 79%	C+
93% to 96%	A	73% to 76%	C
90% to 92%	A -	70% to 72%	C -
87% to 89%	B +	67% to 69%	D+
83% to 86%	B	63% to 66%	D
80% to 82%	B -	60% to 62%	D-
		59% or less	F

Assignment Descriptions and Weightings

The assignments for this course are weighted as follows:

Assignments	Percentage of Final Grade
Course Work (Discussions, Dropboxes and Quizzes)	70%
Final Exam	30%
Total	**100%**

Instructor Contact Response Time

Contact information for the Indiana Online Instructor can be found by clicking on the Course Home link in the navigation menu.

The instructor will respond to student inquiries (email, text, call) **within 24 hours**. Assignments will be graded within 24 hours and grades will be posted.

Information about Final Exam

The Final Exam must be proctored. Final Exams count for 30% of the total grade. Coursework and the Final Exam will determine the Final Grade.

Expectations for Academic Conduct

Student Handbook

It is your responsibility to read the student handbook and contact your instructor if you have any questions.

Acceptable User & Netiquette Policy

The Acceptable Use Policy outlines the guidelines and behaviors that all users (administrators, teachers, students and parents) are expected to follow when participating in the Indiana Online program.

Academic Integrity

Honesty is the Indiana Online policy!

CIPA

The Children's Internet Protection Act (CIPA) is a federal law enacted by Congress to address concerns
about access to offensive content over the Internet on school and library computers.

Assistance for Students with Disabilities

Indiana Online supports an inclusive learning environment for all students. If there are aspects of the instruction or design of this course that hinder your full participation, such inaccessible web content, or the use of non-captioned videos and podcasts, reasonable accommodations can be arranged.

Learn more about the accessibility features in Indiana Online's Learning Management System (LMS), Desire2Learn.

Suggested Assistive Technologies

- Screen Readers: VoiceOver and NVDA
- Chrome Extensions: ChromeVox and Speakit!

Minimum Technical Skills and Special Technology Utilized by Students

This course is totally online. All instructional content and interaction takes place over the internet. In addition to baseline word processing skills and sending/receiving email with attachments, students will be expected to search the internet and upload / download files. In addition, students may need one or more of these technology plug-ins to access course materials and content.

Students should have access to Microsoft Office or have an established Google account to work on course documents.

Technical Questions? Please contact the Indiana Online Helpdesk.